WILDLIFE MANAGEMENT UNIT 29 - ZION

Boundary Description

Iron, Kane and Washington counties - Boundary begins at Interstate 15 and the Utah-Arizona state line; then north on I-15 to Highway SR-14; then east on SR-14 to Highway US-89; then south on US-89 to Highway US-89A; then south on US-89A to the Utah-Arizona state line; then west on this state line to I-15 and beginning point.

The Zion unit is relatively large, yet there are few trend studies located within the unit. There is an estimated 301,431 acres of deer summer range and 333,914 acres of winter range within the unit (DWR 1998). Most of the summer range is found in the northern part of the unit, which includes the southern end of the Markagunt Plateau. Unlike the majority of the wildlife management units in the state, most of the summer range (59%) in the Zion unit occurs on private land with increased summer home development becoming more of a management problem. Of the remaining summer range, 21% is administered by the Forest Service and another 12% occurs within Zion National Park. Winter range predominately occurs on BLM land (54%DeBloois 2001, with an additional 20% in Zion National Park and 18% private.

Herd Unit Management Objectives

Current population management objectives are to maintain a target winter herd population of 9,000 deer. Population density was estimated at 5,000 in 1996. A total of 1,170 bucks are to be harvested annually. The herd composition is to be managed at 15 bucks/100 does post season, with 30% of those bucks being 3-point or better. The buck-doe ratio for 1996-97 was only 7 bucks/100 does.

Peak harvests were reached in the mid-1960's with over 1,700 bucks being harvested in 1965 and 1966. Since then, harvests have shown a downward trend with the lowest harvest occurring in 1979 when less than 400 bucks were taken. Harvests quickly rebounded in 1986 and 1989. Between 1990 and 1995, an average of 1,091 bucks were harvested from the unit. Fawn/100 doe ratios have been good, averaging 72 between 1991-92 and 1995-96. Between 1997-98 and 2000-01 fawn/100 doe ratios declined to an average of 60 (DeBloois 2001). A few elk are also harvested from the unit. A more detailed description of big game statistics including harvest and population classification data can be found in the Division’s big game annual report.

Study Site Description

Only one key area was selected for study in this unit in 1987. It was located at Wilson Ranch (now the Clear Creek Ranch). This study samples a Wyoming big sagebrush flat on private land which is located just east of the Zion National Park boundary, and north of Highway 9. This site was reread in 1992 and 1998. In 1998, two additional trend study sites were established, one at Smith’s Mesa and the other at North Hills. Both occur on the west side of the unit. In 2003, the Wilson Ranch study was suspended and a new study was established in the Barracks chaining located about 3 miles west of Carmel Junction and ½ mile south of Highway 9.

SUMMARY

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Only one trend study, Wilson Ranch (29-1), was established on this unit in 1987. This site was reread in 1992 and 1998 but replaced with a more representative site, Barracks Chaining (29-4) in 2003. Two additional trend studies were established in the unit in 1998 at Smith's Mesa (29-2) and North Hills (29-3). In addition, 3 studies at the Elephant Gap exclosure (29R-1,2,3) were also established in 1998 and reread in 2003. All of these studies sample winter ranges.

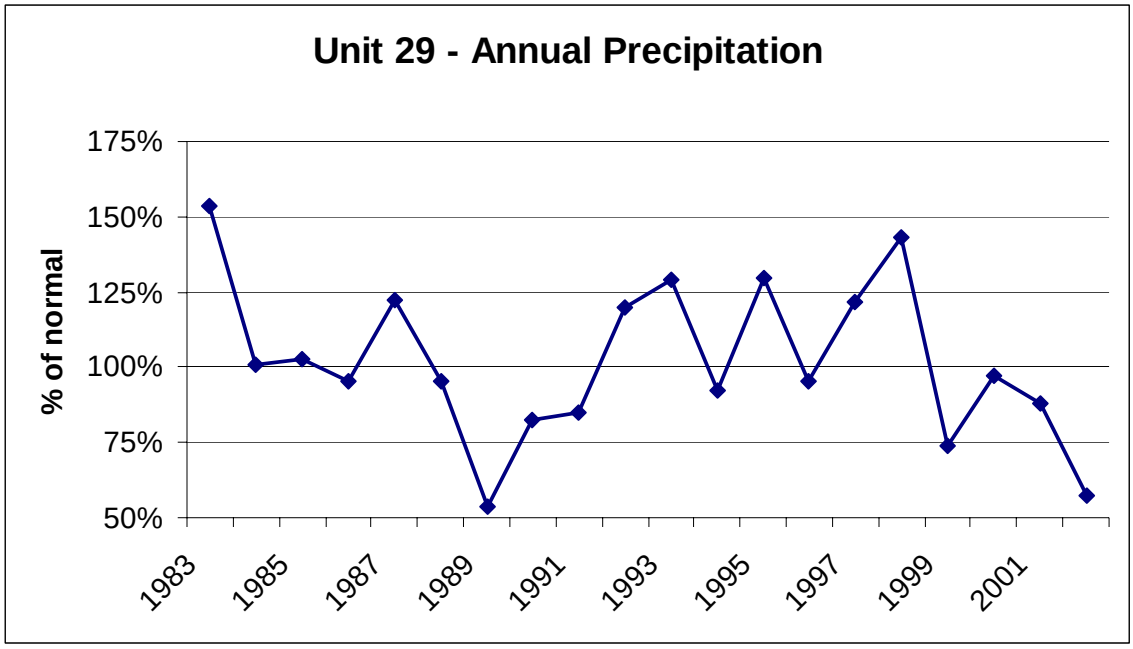
Soil trends are generally down at all sites with the exception of the Elephant Gap total exclosure which had a stable trend. Soils at all sites, except for North Hills, are sandy in texture and have gentle slopes. Erosion is not a serious problem at these sites due to the high infiltration capacity of the soil. However, protective cover in the form of vegetation, litter, and cryptogams have declined. Soil temperatures are universally high on this unit averaging about 72°F. This would suggest dry soil profiles which hinder young shrub recruitment and effect shallow rooted plants.

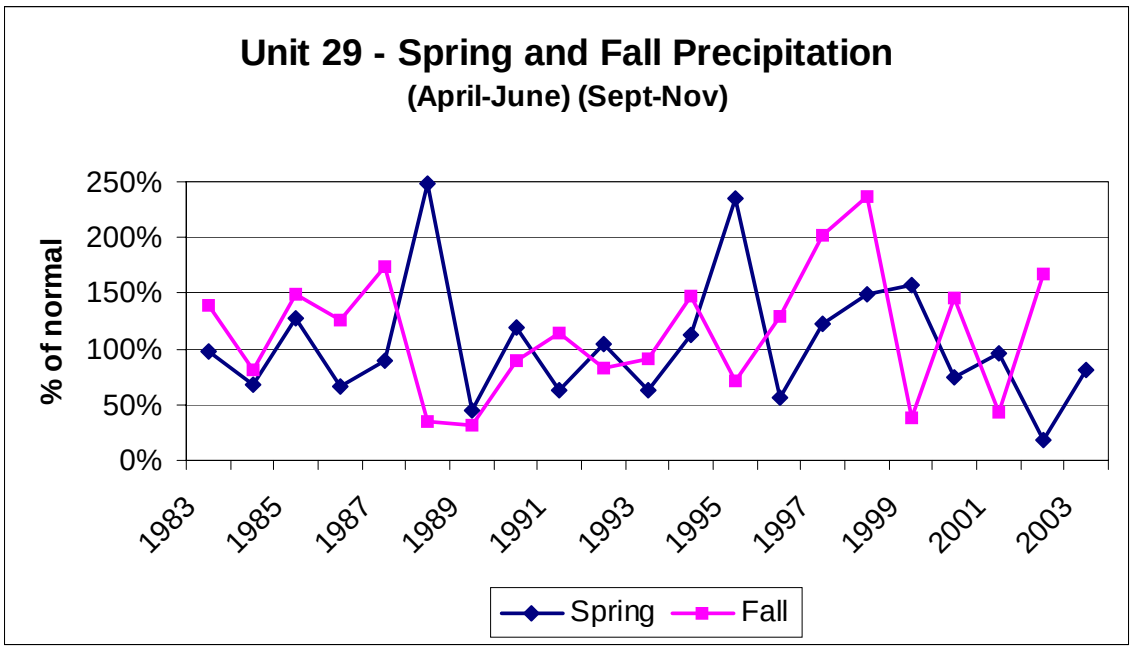
Browse trends are downward on all sites due to a general decline in density of key browse species, increasing percent decadence, increasing poor vigor, and poor young recruitment. Average percent decadence for sagebrush doubled since 1998, from 31% to 61%. The average number of young plants/acre dropped nearly 4 fold (168 plants/acre to 44).

Herbaceous trends were stable at Smith's Mesa but downward at all other sites. Average cover of perennial grasses declined 62% unit wide and sum of nested frequency dropped 33%. Perennial forb cover and frequency also declined unit wide by 39% and 36% respectively.

All of these trends are driven by drought which has effected much of the state for the past several years. Annual precipitation in the Zion unit was near normal in 2000 but below normal in 1999, 2001 and 2002. Conditions were extremely dry in 2002 when only 57% of normal precipitation was recorded. Timing of precipitation is also important. Spring precipitation (April - June) is key for herbaceous plants and shrub recruitment. It was near normal in 2001 but well below normal in 2000, 2002 and 2003. Conditions were exceptionally dry in 2002 when spring precipitation was only about 19% of normal. Precipitation graphs and trends for each study site can be found below.

Below are precipitation graphs for the Zion unit. Data represents percent of normal precipitation averaged for 5 weather stations which include La Verkin, Zion National Park, Orderville, Kanab, and Cedar City (Utah Climate Summaries 2004).





Trend Summary

	Category	1998	2003
29-2 Smith's Mesa	soil	est	2
	browse	est	2
	herbaceous understory	est	3
29-3 North Hills	soil	est	2
	browse	est	2
	herbaceous understory	est	2
29-4 Barracks Chaining	soil		est
	browse		est
	herbaceous understory		est
29R-1 Elephant Gap Total Exclosure	soil	est	3
	browse	est	1
	herbaceous understory	est	2
29R-2 Elephant Gap Livestock Exclosure	soil	est	2
	browse	est	2
	herbaceous understory	est	1
29R-3 Elephant Gap Exclosure Outside	soil	est	2
	browse	est	1
	herbaceous understory	est	1

1 = down, 2 = slightly down, 3 = stable, 4 = slightly up, 5 = up,
est = established, susp = suspended, NR = not read